DOCUMENT RESUME

ED 027 093 48 PS 001 689

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Evaluation of Inkster Preschool Project. Final Report.

Michigan Univ., Ann Arbor. Center for Research on Language and Language Behavior.
Spons Agency-Office of Education (DHEW), Washington, D.C. Cooperative Research Program.
Bureau No-BR-6-1784
Pub Date 1 Sep 68
Contract-OEC-3-6-061784-0508
Note-12p.
EDRS Price MF-$0.25 HC-$0.70
Descriptors-Culturally Disadvantaged, *Enrichment Programs, *Language Handicaps, *Preschool Children, *Program Effectiveness, *Program Evaluation, Sex Differences
Identifiers-*Head Start, ITPA

An experimental group of 22 preschool children from Inkster, Michigan, participated in an April 1967 to August 1967 prekindergarten enrichment program for low socioeconomic children. The program classes were unstructured and permissive. A contrast group of 33 children was also chosen. Both groups of children participated in a preschool program which began in September 1967. The contrast group would also be ready to enter kindergarten in the fall of 1968, but they had not participated in a preschool program prior to September 1967. The children in both groups were administered the Illinois Test of Psycholinguistic Abilities (ITPA) in November 1967. The test results indicated that both groups were functioning below age norms. Another finding was that the contrast group performed significantly better than the experimental group on the total ITPA. The contrast group did significantly better on two of the subtests: visual decoding and visual-motor-sequential. The explanation for this result would seem to be the existence of systematic sample bias. The boys scored consistently higher than the girls on the subtests, an unusual finding explained perhaps in part by the fact that a male teacher was present in the program. Statistical tables and a bibliography are included. (WD)

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BR-6-1784
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EVALUATION OF INKSTER PRESCHOOL PROJECT: FINAL REPORT[1]

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This study reports an evaluation of a preschool program that attempted to improve the cognitive functioning of lower class children. Two groups of children were compared using the ITPA, and it was discovered that the contrast group (those not in the program) were superior to the experimental group. Although the design of the study did not permit definite conclusions from these data, systematic sample bias was offered as the most logical hypothesis.

Additional analyses revealed a sex difference in favor of male children on the visual decode and the motor encode sub-tests. A partial explanation attributes these differences to the presence of a male teacher in the program.

There is a growing awareness that lower-class children, as a group, are disadvantaged in their ability to achieve in school. Project Head Start and numerous experimental preschool programs for lower-class children (Gehlbach, 1965) reflect educators' growing awareness of cognitive deficiencies in these children.

Recent research has suggested that lower-class children are most deficient in the area of language (Ryckman, 1967) and that some, if not all, of these language deficiencies are amenable to remedial action, especially if it is begun at an early age (Barrett & Koch, 1930; Bereiter, Osborn, Englemann, & Reidford, 1966; Cazden, 1966; Dawe, 1942; Hunt, 1964; Kamii, Padin, & Weikart, 1966; Larson & Olson, 1963). These programs for preschool children have varied from traditional nursery school approaches to highly structured "pressure cooker" approaches (Pines, 1967).

Unfortunately, many of the programs attempting to improve the cognitive function of lower-class children have failed to provide for evaluation procedures. The purpose of this paper is to present data on the effectiveness of a preschool program in Inkster, Michigan.

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Two classes were conducted from April to August, 1967. Both classes were basically unstructured and permissive. The activities available for the children included free play (utilizing such materials as play dough, blocks, toys, books, paints, etc.), finger plays, singing, and a daily "story time." Besides the regular classroom activities, the children were taken for walks in the neighborhood and community during which "interesting" things were pointed out. Both in and out of class there was much informal emphasis given to labelling and classifying objects and pictures.

Subjects

Children were selected for the program on the basis of economics and age. They were eligible if they came from families whose income was less than $2500 a year for a family of three. For a family larger than three, the income could not exceed $500 for each additional member. Age was restricted to those youngsters who would be eligible to enter kindergarten in the Inkster Public School system in September, 1968.

The experimental group consisted of 22 children. Nineteen participated from April through August; three were enrolled in June and continued through August. The contrast group consisted of 33 children eligible for the program but prevented from enrolling because the program was full. There was no significant age difference between the groups. The mean chronological age of the experimental group was 53.7 months (*SD* = 3.2) and of the contrast group, 53.5 months (*SD* = 4.3). Both groups were in a preschool program which had begun in September, 1967.

Procedures

The original plan was to incorporate the evaluation of this program into a highly-structured language training project in Ann Arbor, Michigan, under the supervision of the Center for Research on Language and Language Behavior. This study would have included pre- and post-testing on several instruments. However, funding problems prevented the institution of this cooperative project.

The only alternative available at the time of the evaluation was to use a contrast group design. It was reasoned that if the summer program aided language development, then youngsters in the program would demonstrate a superiority over those who entered the program in the fall. This design assumed that there were no systematic differences between the two groups prior to the summer program. Randomization, though desirable, was impossible.

The Illinois Test of Psycholinguistic Abilities (ITPA) (Kirk & McCarthy, 1961) was individually administered to each child during a four-day period in November, 1967. Four testers were trained to administer the test in a business-like manner rather than the traditional clinical way. A study by Bateman (1967) has shown the effectiveness of this approach in research testing. One of the main virtues of this technique is that it tends to decrease inter-tester differences.

Results and Discussion

Figure 1 shows the profiles for the two groups. Both profiles indicate that the children are functioning below age norms. Two findings are typical

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Insert Figure 1 about here

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of culturally deprived preschool children: the dip in the auditory-vocal-automatic subtest and the relative peak in the auditory-vocal-sequential subtest. The dip is a consistent finding (Bereiter & Englemann, 1966; Ryckman, 1967). Though the reasons are not yet fully known, the work of Bernstein (1960; 1961) suggests that the confrontation of different language codes may operate to impair the school functioning of lower class children. The relative peak in the auditory-vocal-sequential subtest is a consistent characteristic of pre-school Negro children (Ryckman, 1966). However, no satisfactory explanation of this phenomenon has yet been offered.

Table 1 shows the ITPA test results of the two groups. On total ITPA language age, the contrast group was superior to the experimental group at the .05 level of significance. Examination of subtest differences reveals that the contrast group was significantly superior to the experimental group on two

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Insert Table 1 about here

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subtests: visual decoding and visual-motor-sequential. These results are contrary to expectations and to usual findings on preschool programs for the disadvantaged.

Three alternative hypotheses can explain the results: (a) the program had a depressing effect on the stated areas of language functioning; (b) the program was not so stimulating for the children as some undefined activity that the children in the contrast group participated in during the summer; and (c) the two groups were systematically different and the assumption of equality of the groups was unjustified. The data do not allow a decision in favor of one of these three alternatives. However, nothing in the lesson plans nor in observations by the tester warrants the adoption of the first hypothesis. It is unlikely that some unspecified extra school activity posited by the second hypothesis would produce the significant differences between the groups. Systematic sample bias as suggested by the third hypothesis seems the most logical explanation. There is no objective evidence to support any of these hypotheses.

Discussions with the director of the project have lent some support to the third hypothesis. He noted that for the original summer sample, the project workers had to seek out children for enrollment. For the fall group, however, many parents volunteered their children. It may be that the children of more able parents were disproportionately represented in the fall sample. If so, then it suggests that strictly economic considerations form an inadequate criterion for educational decisions.

Although not directly relevant to the evaluation of the summer preschool program, several additional analyses were completed to guide future programs and their evaluation. The variables examined were sex, dwelling and school as they related to ITPA scores.

Table 2 presents the data on sex. Several interesting results emerge. On the visual decode subtest, the boys were superior to the girls at the .05 level of significance. Since this was one of the variables which differentiated

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Insert Table 2 about here

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between the experimental and contrast groups, a chi-square test was run to see if there were significant differences in the proportion of boys in the two groups, but no such difference was found. The boys were superior to the girls on the motor encode test at the .05 level of significance. Furthermore, although the remaining eight analyses failed to reach the .05 level of significance, in every case the mean for the boys was higher than the mean for the girls. This trend is surprising, since most literature on sex difference would suggest the opposite. A partial explanation might be that one of the teachers was a man. Men are seldom found in the classroom at this level. When the teacher is a man, the boys may identify more easily with the teacher and hence show better progress. The small size of the sample does not permit this hypothesis to be verified; further research should examine sex differences more adequately, in particular the effect of the sex of the teacher on achievement. The implications for programs for preschool disadvantaged children are apparent.

The children came from three basic types of dwellings: (a) old, unkempt public housing units, (b) relatively poor single-unit dwelling, and (c) modern public housing units. The director of the preschool program pointed out that many families in the older public units tried to move into the newer ones but that only those families able to concert their action succeeded. It was reasoned, in addition to the more pleasant physical surroundings, they could provide their children, the parents in the newer housing units might well be generally superior in their ability to manipulate the environment. All the groups were compared on all variables. On the visual decoding subtest the children from the modern units were superior to the children from the old units at the .05 level of significance (modern unit mean = 43.70, $\underline{SD}$ = 16.11; old unit mean = 33.29, $\underline{SD}$ = 10.45; $\underline{t}$ = 2.21). The means for all ten variables were consistently higher for the modern-unit than for the old-unit group. All the other comparisons failed to reach the .05 level of significance. The single-dwelling group usually fell between the two others. These findings suggest that differences in type of dwelling warrant more careful analysis in future evaluations of the preschool project.

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Table 3 summarizes the data on the comparison of the two preschool centers. The St. Clements preschool center was significantly superior ($p < .05$)

Insert Table 3 about here

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to the St. James center on total ITPA Language Age and on three subtests: auditory-vocal-association, vocal encoding, and visual-motor-sequential. There is no ready explanation for these differences. In future evaluations of the program it would be important to determine whether these differences reflect sample bias, teacher differences, program differences, or some combination of them.

Summary and Discussion

The data from this study fail to show that the project was effective. There are several possible explanations for these negative findings, but whatever the reasons, it appears essential to re-examine the actual content of the program. It may well be that the focus of the program should shift to direct instruction in language. The test profiles suggest that both groups were functioning well below their chronological age expectations. If these children are to be made ready to compete with their middle class peers, they will need intensive training in their major area of deficiency, i.e., in language.

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Footnote

[1]The research reported herein was performed pursuant to Contract OEC-3-6-061784-0508 with the U. S. Department of Health, Education, and Welfare, Office of Education, under the Provisions of P. L. 83-531, Cooperative Research, and the provisions of Title VI, P. L. 85-864, as amended. This research report is one of several which have been submitted to the Office of Education as Studies in Language and Language Behavior, Progress Report VII, September 1, 1968.

Table 1

t Tests for ITPA Total Language Age (L.A.) and Each of Nine Subtests Between Experimental and Contrast Groups

	Contrast Group (N = 33)		Experimental Group (N = 22)		t*
	mean (months)	SD	mean (months)	SD	
Total L.A.	47.9	6.7	43.7	5.7	2.35
Auditory Decode	52.3	13.9	47.4	10.6	1.39
Visual Decode	44.9	15.7	32.7	10.6	3.15
Auditory-Vocal Association	42.2	10.1	37.5	5.6	1.92
Visual-Motor Association	49.5	9.0	45.[illegible]	9.8	1.45
Vocal Encode	44.5	13.9	43.2	11.6	0.36
Motor Encode	42.1	10.1	39.9	12.2	0.72
Auditory-Vocal Automatic	39.3	9.7	36.5	8.9	1.13
Auditory-Vocal Sequential	61.7	14.2	61.7	10.7	0.01
Visual-Motor Sequential	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

* at p = .01, t = 2.678 (30 df)
at p = .05, t = 2.008 (30 df)

Table 2

t Tests for ITPA Total Language Age (L.A.) and Each of Nine Subtests Between Boys and Girls

	Boys (*N* = 22)		Girls (*N* = 33)		*t**
	mean (months)	*SD*	mean (months)	*SD*	
Total L.A.	48.05	5.39	45.03	7.32	1.65
Auditory Decode	51.68	9.79	49.42	14.87	.63
Visual Decode	46.23	18.50	35.91	11.16	2.58
Auditory-Vocal Association	42.55	8.84	38.79	8.93	1.53
Visual-Motor Association	48.90	10.12	47.85	9.59	.09
Vocal Encode	46.86	12.16	42.73	12.28	1.17
Motor Encode	45.41	10.14	38.45	11.06	2.36
Auditory-Vocal Automatic	38.50	10.20	37.85	9.35	.24
Auditory-Vocal Sequential	62.64	14.70	61.09	17.46	.34
Visual-Motor Sequential	42.05	6.59	44.73	10.86	1.04

* at *p* = .01, *t* = 2.68 (50*df*)
at *p* = .05, *t* = 2.01 (50*df*)

Table 3

t Tests for ITPA Total Language Age (L.A.) and Each of Nine Subtests Between St. Clements and St. James Preschool Centers

	St. Clements		St. James		t
	Mean		Mean		
Total L.A.	48.54	6.84	44.07	6.18	2.50
Auditory Decode	51.04	15.24	49.10	11.30	.53
Visual Decode	40.00	14.67	39.17	15.74	.20
Auditory-Vocal Association	42.79	9.12	37.78	8.19	2.13
Vocal-Motor Association	49.42	10.50	46.72	8.21	1.05
Vocal Encode	50.29	13.01	38.38	9.29	3.88
Motor Encode	44.04	12.00	38.38	9.66	1.90
Auditory-Vocal Automatic	39.67	10.21	36.10	8.67	1.37
Auditory-Vocal Sequential	64.50	17.73	60.69	14.85	.85
Visual-Motor Sequential	47.50	9.63	40.72	8.43	2.73

* at $p = .01$, $t = 2.68$ (50 df)
at $p = .05$, $t = 2.01$ (50 df)

ITPA Profiles of the Experimental and Contrast Groups

	REPRESENTATIONAL LEVEL						AUTOMATIC SEQUENTIAL LEVEL		
	Decoding		Association		Encoding		Automatic	Sequential	
	1	2	3	4	5	6	7	8	9
LA	Auditory	Visual	Auditory Vocal	Visual Motor	Vocal	Motor	Auditory Vocal	Auditory Vocal	Visual Motor
9-0									
8-6									
8-0									
7-6									
7-0									
6-6									
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5-0									
4-6									
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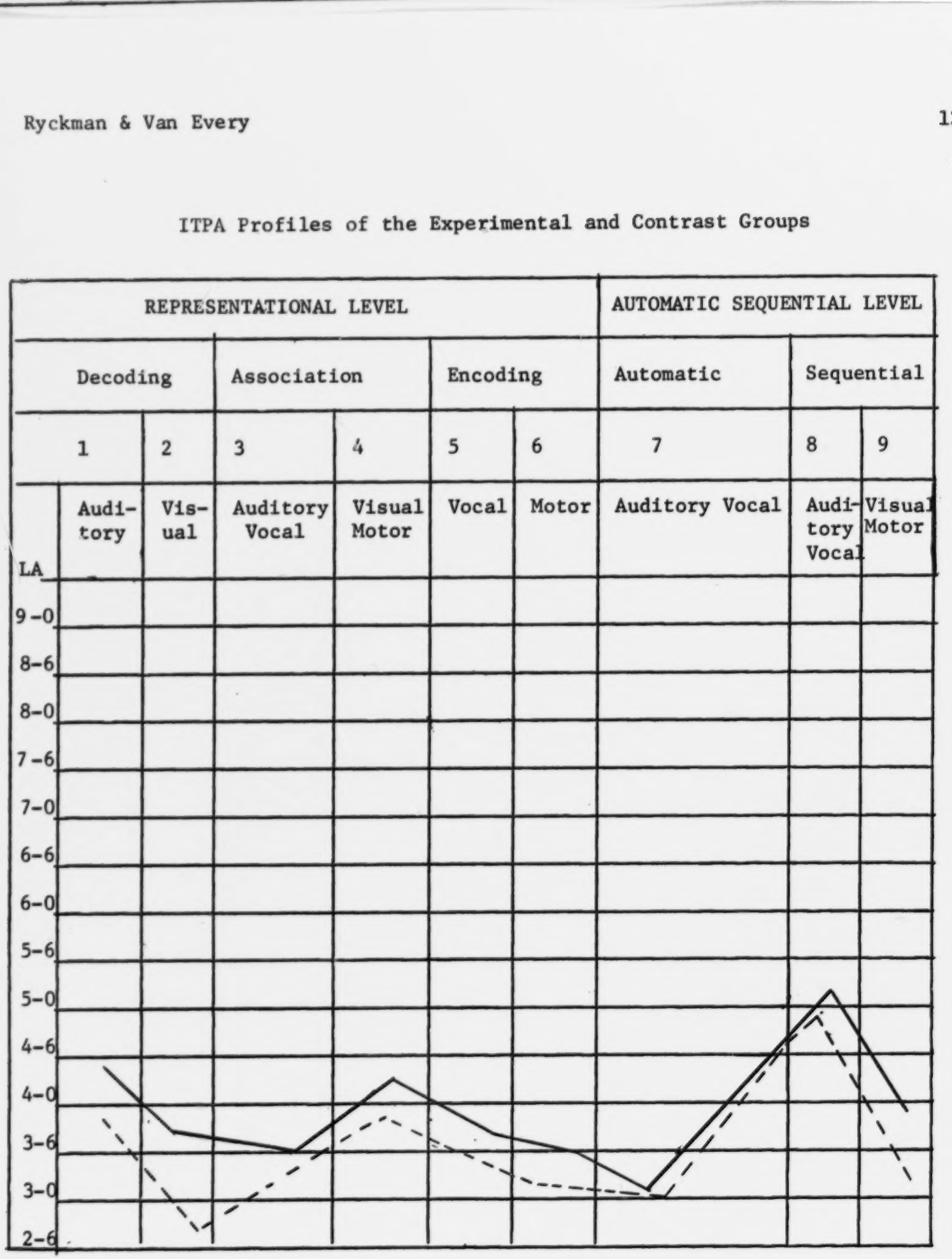

Figure 1

Experimental Group ----------

Contrast Group_____